In the Claims

A detailed listing of all claims has been provided. A status identifier is provided for each claim in a parenthetical expression following each claim number.

Claims 1—105 were originally filed.

No claims were canceled.

No claims are newly added.

Accordingly, claims 1—105 are pending.

1. (Original.) An architecture comprising:

a table appearance manager to manage how a table appears in a document; and

a spreadsheet functionality manager to manage spreadsheet functions for the table.

2. (Original.) The architecture of claim 1, wherein the document is a markup document.

3. (Original.) The architecture of claim 1, wherein the table appearance manager provides a formula edit box to permit the user to enter a formula into a cell of the table.

4. (Original.) The architecture of claim 1, wherein the table appearance manager comprises:

a table component to support editing functionality of the table; and

a spreadsheet component to receive data and formulas input into the table.

5. (Original.) The architecture of claim 1, wherein the spreadsheet functionality manager comprises:

a cell table to maintain data values and formulas used in the table; and

a format table to maintain formatting information used in the table.

6. (Original.) The architecture of claim 1, wherein the spreadsheet functionality manager comprises:

a cell table to maintain data values and formulas used in the table; and

a recalculation engine to recalculate the formulas following a change to a data value or formula in the cell table.

7. (Original.) The architecture of claim 1, wherein the spreadsheet functionality manager comprises:

a cell table to maintain data values and formulas used in the table;

a delay parser to parse input for the cell table as needed; and

a recalculation engine to recalculate the formulas following a change to a data value or formula in the cell table.

8. (Original.) The architecture of claim 1, wherein multiple tables appear in one or more documents, and the spreadsheet functionality manager is configured to maintain data and formulas for the multiple tables.

9. (Original.) The architecture of claim 1, wherein multiple tables appear in one or more documents, and the spreadsheet functionality manager is configured to track references made from one table to another table.

10. (Original.) The architecture of claim 1, wherein multiple tables appear in one or more documents, and the spreadsheet functionality manager is configured to maintain data and formulas for the multiple tables and track references made from one table to another table, the spreadsheet functionality being further configured to update any data and formulas in the multiple tables that is affected by a change made to one of the tables.

11. (Original.) The architecture of claim 1, wherein multiple tables appear in one or more documents, and wherein:

the table appearance manager comprises multiple spreadsheet components so that there is one spreadsheet component for an associated table, each spreadsheet component being configured to capture data and formulas input into the associated table; and

the spreadsheet functionality manager comprises multiple grid components so that there is one grid component for an associated table and an associated spreadsheet component, each grid component maintaining the data, the formulas, and formatting used in the associated table.

12. (Original.) The architecture of claim 1, further comprising a document renderer to render the document.

13. (Original.) The architecture of claim 1, wherein the table appearance manager and the spreadsheet functionality manager reside on different computers.

14. (Original.) An architecture comprising:

a user interface to present a document containing text and a table; and

a table management system to manage how the table appears in the document and to manage spreadsheet functions for the table.

15. (Original.) The architecture of claim 14, wherein the table management system provides a formula edit box to permit the user to enter a formula into a cell of the table.

16. (Original.) The architecture of claim 14, wherein the table management system comprises:

a table component to support editing functionality of the table; and

a spreadsheet component to receive data and formulas input into the table.

17. (Original.) The architecture of claim 14, wherein the table management system comprises:

a cell table to maintain data values and formulas used in the table; and

a format table to maintain formatting information used in the table.

18. (Original.) The architecture of claim 14, wherein the table management system comprises:

a cell table to maintain data values and formulas used in the table; and

a recalculation engine to recalculate the formulas following a change to a data value or formula in the cell table.

19. (Original.) The architecture of claim 14, wherein the table management system comprises:

a cell table to maintain data values and formulas used in the table;

a delay parser to parse input for the cell table as needed; and

a recalculation engine to recalculate the formulas following a change to a data value or formula in the cell table.

20. (Original.) The architecture of claim 14, wherein the document contains multiple tables, and the table management system is configured to maintain data and formulas for the multiple tables.

21. (Original.) The architecture of claim 14, wherein the user interface presents multiple tables in one or more documents, and the table management system is configured to maintain data and formulas for the multiple tables and track references made from one table to another table, the table management system being further configured to update any data and formulas in the multiple tables that is affected by a change made to one of the tables.

22. (Original.) An architecture comprising:

a complementary pair of spreadsheet and grid components for each table in the document;

the spreadsheet component receiving data and formulas entered into the table;

the grid component tracking the data and formulas in relation to cells in the table; and

a recalculation engine to recalculate the formulas following a change to data in the grid component.

23. (Original.) The architecture of claim 22, wherein new data is entered into the table and in response:

the spreadsheet component receives the data and passes the data onto the grid component;

the grid component stores the new data; and

the recalculation engine recalculates any formula affected by the new data.

24. (Original.) The architecture of claim 22, wherein a new formula is entered into the table and in response:

the spreadsheet component receives the formula and passes it onto the grid component;

the grid component stores the formula; and

the recalculation engine recalculates any formula affected by the entry of the new formula.

25. (Original.) The architecture of claim 22, wherein the grid component comprises:

a cell table to maintain data and formulas in cells associated with the table; and

a format table to maintain formatting information pertaining to the cells associated with the table.

26. (Original.) The architecture of claim 22, wherein the spreadsheet component provides a formula edit box user interface that permits user entry of a formula.

27. (Original.) The architecture of claim 22, wherein the spreadsheet component facilitates referencing between cells in the table and between a first cell in a first table and a second cell in a second table.

28. (Original.) The architecture of claim 22, wherein the spreadsheet component comprises:

a cell editing element to facilitate editing in the table; and

a cell behavior element to manage referencing between cells in the table and among cells in multiple tables.

29. (Original.) The architecture of claim 22, further comprising a parser to parse the data and formulas received by the spreadsheet component.

30. (Original.) The architecture of claim 22, further comprising a delay parser to parse the data and formulas received by the spreadsheet component on an as-needed basis.

31. (Original.) The architecture of claim 22, further comprising multiple complementary pairs of grid and spreadsheet components corresponding to multiple tables in the document.

32. (Original.) The architecture of claim 31, wherein a first grid component references a second grid component to support cross table referencing from a first table associated with the first grid component and a second table associated with the second grid component.

33. (Original.) The architecture of claim 32, wherein the recalculation engine, responsive to a change in the second grid component, recalculates a formula in the first grid component.

34. (Original.) An architecture comprising:

a document renderer to render a document containing at least one table;

a spreadsheet component associated with the table to accept data and formulas entered into the table; and

a spreadsheet engine to manage the data and formulas and to recalculate the formulas as the data in the table is modified.

35. (Original.) The architecture of claim 34, wherein the document renderer resides on a different computer than the spreadsheet component and the spreadsheet engine.

36. (Original.) The architecture of claim 34, wherein the spreadsheet component provides a formula edit box user interface that permits user entry of a formula.

37. (Original.) The architecture of claim 34, wherein the document contains first and second tables, further comprising:

first and second spreadsheet components for respective first and second tables, the spreadsheet components facilitating referencing between a first cell in the first table and a second cell in the second table; and

the spreadsheet engine managing the data and formulas in the first and second tables and recalculating the first cell in the first table in response to a change of the second cell in the second table.

38. (Original.) The architecture of claim 34, wherein the document renderer renders a free floating field separate from the table, the architecture further comprising:

a spreadsheet component associated with the free floating field to accept a formula; and

the spreadsheet engine being further configured to manage the formula in the free floating field and to recalculate the formula as the table is modified.

39. (Original.) The architecture of claim 34, wherein a particular cell in the table contains a non-calculation formula that is not evaluated by the spreadsheet engine but which defines a dependency between two cells.

40. (Original.) The architecture of claim 34, further comprising a document object to perform insertion of the tables.

41. (Original.) An architecture comprising:

first and second tables renderable as part of a common document;

a first spreadsheet component to receive at least one of data or a first formula entered into a first cell in the first table;

a first grid component to hold the data or first formula in association with the first cell of the first table;

a second spreadsheet component to receive at least a second formula entered into a second cell in the second table, the second formula referencing the first cell in the first table; and

a second grid component to hold the second formula in association with the second cell of the second table.

42. (Original.) The architecture of claim 41, wherein the first table is nested within the second table.

43. (Original.) The architecture of claim 41, wherein the second spreadsheet component presents a formula edit box to allow user entry of the second formula.

44. (Original.) The architecture of claim 41, wherein the second spreadsheet component facilitates reference editing to the first cell in the first table.

45. (Original.) The architecture of claim 41, wherein the first table is nested within the second table and the second spreadsheet component facilitates reference editing to the first cell in the first table.

46. (Original.) The architecture of claim 41, further comprising a recalculation engine to recalculate the second formula held in the second grid component in response to a change of the first cell in the first grid component.

47. (Original.) The architecture of claim 46, wherein the second table is updated to reflect a result produced by the recalculation engine.

48. (Original.) The architecture of claim 46, wherein the first and second tables are updated to reflect a result produced by the recalculation engine.

49. (Original.) The architecture of claim 46, wherein the first table is nested within a particular cell of the second table, the particular cell containing a non-calculation formula that is not evaluated by the recalculation engine but which defines a dependency between the two cells.

50. (Original.) The architecture of claim 41, further comprising:

a free floating field renderable in the document but separately from the first and second tables;

a third spreadsheet component to receive a third formula entered into the free floating field; and

a third grid component to hold the third formula.

51. (Original.) A method comprising:

presenting a table within a document;

receiving data and at least one formula referencing the data entered into the table;

managing the data and formula from the table;

recalculating the formula in response to change of the data; and

presenting a modified table within the document, the modified table reflecting results from said recalculating.

52. (Original.) The method of claim 51, wherein the presenting comprises rendering a markup document.

53. (Original.) The method of claim 51, wherein the managing comprises storing the data and formula in one or more objects associated with the table.

54. (Original.) The method of claim 51, wherein the managing comprises:

maintaining the data and formula in a first structure representative of the table; and

maintaining formatting information for the table in a second structure representative of the table.

55. (Original.) The method of claim 51, wherein the recalculating comprises traversing a chain of formulas and calculating the formulas according to an order in the chain.

56. (Original.) The method of claim 51, further comprising presenting a free floating field in the document and separate from the table, the free floating field containing a formula that references the data in the table.

57. (Original.) The method of claim 56, wherein the recalculating further comprises recalculating the formula in the free floating field in response to change of the data.

58. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, perform the method as recited in claim 56.

59. (Original.) A method comprising:

presenting a table user interface (UI) within a markup document, the table UI containing data and at least one formula referencing the data;

creating a cell table to hold the data and formula for the table UI;

creating a format table to hold formatting information for the table UI;

receiving user input in the table UI;

parsing the user input to update the cell table and the format table;

in an event the user input changes the data being referenced, recalculating the formula in the cell table to produce a new result; and

presenting the table UI with the new result.

60. (Original.) The method of claim 59, wherein the presenting comprises rendering the table UI as an HTML table.

61. (Original.) The method of claim 59, wherein the cell table references one or more cell objects, each cell object being associated with a cell in the table UI.

62. (Original.) The method of claim 59, wherein the format table contains formatting information for individual cells in the table UI.

63. (Original.) The method of claim 59, wherein the parsing determines whether the user input is a formula, data, or text and determines the data format of that input.

64. (Original.) The method of claim 59, wherein the recalculating comprises traversing a chain of formulas and calculating the formulas according to an order in the chain.

65. (Original.) The method of claim 59, wherein parsing comprises delaying parsing of selected cells in the cell table and the recalculating comprises inducing additional parsing of the selected cells as needed by the formula.

66. (Original.) The method of claim 59, further comprising presenting a free floating field in the document and separate from the table, the free floating field containing a formula that references the data in the table.

67. (Original.) The method of claim 66, wherein the recalculating further comprises recalculating the formula in the free floating field in response to change of the data.

68. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, perform the method as recited in claim 59.

69. (Original.) A method comprising:

presenting first and second tables within a document, the first and second tables being separate from one another;

receiving data for the first table;

receiving a formula for the second table, the formula referencing the data in the first table; and

upon modification of the data in the first table, automatically recalculating the formula in the second table.

70. (Original.) The method of claim 69, wherein the presenting comprises nesting the first table within the second table.

71. (Original.) The method of claim 69, wherein the receiving formula comprises displaying a formula edit box in association with a cell of the table into which the formula is being entered, the formula edit box permitting user entry of the formula.

72. (Original.) The method of claim 69, further comprising enabling a user to reference the data in the first table when entering the formula in the second table.

73. (Original.) The method of claim 69, wherein the presenting comprises nesting the first table within the second table and further comprising enabling a user to reference the data in the first table when entering the formula in the second table.

74. (Original.) The method of claim 69, wherein the presenting comprises nesting the first table within a particular cell of the second table, the particular cell containing a non-calculation formula that is not recalculated as part of the recalculating.

75. (Original.) The method of claim 69, further comprising presenting a free floating field in the document and separate from the first and second tables, the free floating field containing a formula that references one of the data in the first table or the formula in the second table.

76. (Original.) The method of claim 75, wherein the recalculating further comprises recalculating the formula in the free floating field in response to change of the data in the first table.

77. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, perform the method as recited in claim 69.

78. (Original.) A method comprising:

presenting first and second tables within a document, the first table having at least one cell with contents; and

referencing the cell in the first table from a cell in the second table.

79. (Original.) The method of claim 78, wherein the presenting comprises nesting the first table within the second table.

80. (Original.) The method of claim 78, wherein the referencing comprises using a pointer to reference the cell.

81. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, perform the method as recited in claim 78.

82. (Original.) A method comprising:

creating a first spreadsheet table for display in a document; and

creating a second spreadsheet table for display in the document, the second spreadsheet table being nested within the first spreadsheet table when displayed.

83. (Original.) A data structure stored on a computer readable medium, the data structure being produced as a result of the method of claim 82.

84. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, perform the method as recited in claim 82.

85. (Original.) A method comprising:

integrating text and a spreadsheet table within a common document, the spreadsheet table supporting spreadsheet functionality;

formatting the text according to a particular format; and

formatting cells in the spreadsheet table according to the particular format.

86. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, perform the method as recited in claim 85.

87. (Original.) A method comprising:

integrating text and a spreadsheet table within a common document, the spreadsheet table supporting spreadsheet functionality; and

evaluating the text and the spreadsheet table concurrently for possible spelling or grammatical errors.

88. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, perform the method as recited in claim 87.

89. (Original.) A method comprising:

integrating text and a spreadsheet table within a common document, the spreadsheet table supporting spreadsheet functionality;

enabling a user to select a control function to modify or evaluate an aspect of the document; and

applying the control function across both the text and the spreadsheet table.

90. (Original.) The method of claim 89, wherein the control function is selected from a group of functions including formatting, spell checking, grammar checking, find, find and replace, auto-correct, applying document themes, inserting lists, images, drawings, charts, hyperlinks, automatic detection of hyperlinks, and automatic detection of lists.

91. (Original.) The method of claim 89, wherein the control function is any text feature that can be applied to the text and the applying comprises applying that text feature to the spreadsheet table.

92. (Original.) A method comprising:

integrating text and a first spreadsheet table within a common document, the spreadsheet table supporting spreadsheet functionality;

creating a second spreadsheet table by cutting or copying all or part of the first spreadsheet table and pasting said all or part of the first spreadsheet table; and

updating any references to cells in the first spreadsheet table or the second spreadsheet table to reflect the newly created second spreadsheet table.

93. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, performs the following:

construct a table user interface (UI) for display within a document;

create a cell table to hold data and at least one formula for the table UI; and

upon modification of the data, recalculate the formula in the cell table to produce a new result.

94. (Original.) The computer medium of claim 93, further comprising computer-executable instructions that, when executed on one or more processors, perform creation of a format table to hold information pertaining to a data format of the table UI.

95. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, performs the following:

construct a first table user interface (UI) for display within a document;

create a first cell table to hold data for the first table UI;

construct a second table user interface (UI) for display within the document;

create a second cell table to hold a formula for the second table UI, the formula referencing the data in the first cell table; and

upon modification of the data in the first cell table, recalculate the formula in the second cell table to produce a new result.

96. (Original.) The computer medium of claim 95, wherein the first table UI is nested within the second table UI.

97. (Original.) A computer readable medium having computer-executable instructions that, when executed on one or more processors, performs the following:

construct a table user interface (UI) for display within a document;

create a first cell table to hold data for the table UI;

construct a free floating field for display within the document;

create a second cell table to hold a formula for the free floating field, the formula referencing the data in the first cell table; and

upon modification of the data in the first cell table, recalculate the formula in the second cell table to produce a new result.

98. (Original.) A computer comprising:

a memory;

a processing unit coupled to the memory; and

an architecture stored in the memory and executable on the processing unit to construct and display a document having a table with integrated spreadsheet functionality.

99. (Original.) A computer as recited in claim 98, wherein the architecture constructs multiple tables within the document, at least one table containing a reference to contents in another table.

100. (Original.) A computer as recited in claim 98, wherein the architecture constructs multiple tables within the document, the tables containing formulas referencing contents of other tables, whereupon modification of content in one of the tables, the architecture automatically recalculates all formulas in the tables in the document.

101. (Original.) A computer as recited in claim 98, wherein the architecture constructs a free floating field in the document, the free floating field containing a formula referencing content in the table, whereupon modification of content in the table, the architecture automatically recalculates the formulas in the free floating field.

102. (Original.) A computer as recited in claim 98, wherein the architecture comprises:

a table appearance manager to manage how a table appears in the document; and

a spreadsheet functionality manager to manage spreadsheet functions for the table.

103. (Original.) A computer as recited in claim 98, wherein the architecture comprises a complementary pair of spreadsheet and grid objects for the table, the spreadsheet object facilitating user entry of content into the table and the grid object holding the content for the table.

104. (Original.) A markup document stored on a computer readable medium and renderable on a display, comprising:

a text portion;

a first spreadsheet table having multiple cells; and

a second spreadsheet table nested within a cell of the first spreadsheet table.

105. (Original.) A data structure stored as recited in claim 104, further comprising a free floating field embedded in the text portion, the free floating field referencing a cell in one of the first table or the second table.